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The StarLink Mess and Why We Should Go Slow

BY ELLEN PFEIFER

Amory Lovins of the Rocky Mountain Institute likens genetically engineered foods to nuclear power. Like nuclear fission, biotechnology is subject to the laws of "unintended consequences," he says. The new science is only "fit for a wise, far-seeing, and incorruptible people."

The concerns of Lovins and others are underscored by the recent StarLink corn debacle, a case study of why society should go slow with GMOs (genetically modified organisms).

With its genetically-inserted pesticide, StarLink held out the promise of more abundant harvests, despite some worries that it could cause allergic reactions in humans. But

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Delivering Biotech Corn

FEATURED COMPANY

Whole Foods Market: An Organic Growth Story

BY SCOTT VAN WINKLE AND FRANK GIANCI

AS CONTROVERSY ROILS THE BIOTECHNOLOGY SCENE, INVESTORS MIGHT DO WELL TO CONSIDER COMPANIES THAT OFFER CONSUMERS A SAFE HARBOR FROM GENE SPLICING AND DICING. WHOLE FOODS MARKET (NASDAQ: WFMI) IS ONE SUCH COMPANY. IT HAS EXPERIENCED TREMENDOUS GROWTH IN RECENT YEARS AND COULD BENEFIT FROM CONSUMERS' RELUCTANCE TO EMBRACE GENETICALLY MODIFIED (GM) PRODUCTS.

As the nation's largest chain of natural food markets, the company offers customers the feel and selection of a large supermarket within a natural products and healthy living context. It presents gourmet-quality merchandise attractively displayed while ensuring that the products are naturally derived and free of unnecessary additives. The success of the company and the natural food segment as a whole has prompted numerous traditional supermarket chains to incorporate whole foods departments within their stores.

A Strong Category

Driven by concerns over health, food safety, and the environment, the market for natural food and nutritional products continues its four-year growth trend of about 15% annually. As the largest natural products retail chain, Whole Foods has taken advantage of this demand and expanded aggressively in most metropolitan areas across the United States. The company now owns and operates 117 stores, and plans to reach 200 stores by 2004. These natural "super stores" have an average floor space of approximately 26,000 square feet and produce annual revenue of \$16+ million.

The addition of new stores, coupled with strong performance in existing stores (with same store sales climbing 8-10% per year) has been a formula for profitability. Year-over-year gross and store operating margins continue to improve and the company has increased earnings by 15-20% for the past several quarters.



Bumps in the Road

While the core business remains robust, investments in complementary businesses have proven less successful for Whole Foods. In 1997, the company acquired nutritional supplement manufacturer Amrion in an attempt to increase its presence in the once rapidly growing supplement industry. The company's expectations were dashed when the segment experienced sharp declines in the past year. Similarly, the company made a series of Internet-related investments that have under-performed. In particular, Whole Foods' e-commerce company, WholePeople.com,

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Green Energy Heats Up

JACKSON W. ROBINSON

The coming winter may be unseasonably cold and the overall economy may be cooling, but green power is red hot. Indeed, we calculate annual revenue growth of +31% for the "Green Energy" sector over the next five years.

In a recent interview with the press, we were asked to define Green Energy and to quantify its size, shape, and expected worldwide revenue growth between now and 2005. While it took some doing to research the questions, we are confident about our answers. We think our projection of a 31% compound annual growth rate is particularly significant. It compares favorably with the overall economy and with the traditional fossil fuel industry, both of which are growing at about 2-3% annually.

What It Is

Green Energy includes technologies that provide reliable, high quality power that is environmentally friendly and cost effective. In evaluating different types, we apply such ecological criteria as the fuel source powering the technology, emissions, toxicity, and disposal. We believe that the following five Green Energy technologies (see glossary) have big growth potential: geothermal heat pumps, photovoltaics, wind turbines, fuel cells, and flywheels.

Total revenues in 2000 for the Green Energy industry were about \$5.5 billion, with wind energy being by far the largest category at 74% or \$3.4 billion. Solar energy or photovoltaics placed a distant second at \$551 million or 12% of the total. The remaining three categories, consisting of geothermal heat pumps, fuel cells, and flywheels, make up the remaining 13%.

Shortages Fueling the Growth

If we take a look at the power problems in California today, we can identify the key global growth drivers for Green Energy. They include: chronic shortages resulting in frequent "brownouts" and "blackouts"; unmet demand by commerce and industry for dependable, high quality power; rising prices for all fossil fuels; energy related growth constraints; and health-driven pollution reduction requirements, especially for automobiles, trucks, buses, and utilities. In fact, without the rapid conversion to Green Energy, California's quality of life could well be at risk.

Fuel Cells Leading the Pack

Using data from company and industry sources along with input from energy analyst Namrita Kapur of AH&H, we estimate that annual global revenues for the Green Energy industry will grow to \$21.2 billion over the next five years—which produces our compound annual growth rate (CAGR) of 31% (see chart). The most significant growth category will be fuel cells which we see taking off from \$190 million of revenues in 2000 to \$7.9 billion in 2005, a CAGR of 212%. While fuel cells today represent only 3% of the Green Energy industry, we predict that they will grow to 38% of the industry in 2005, just shy of wind energy at 44% or \$9.4 billion.

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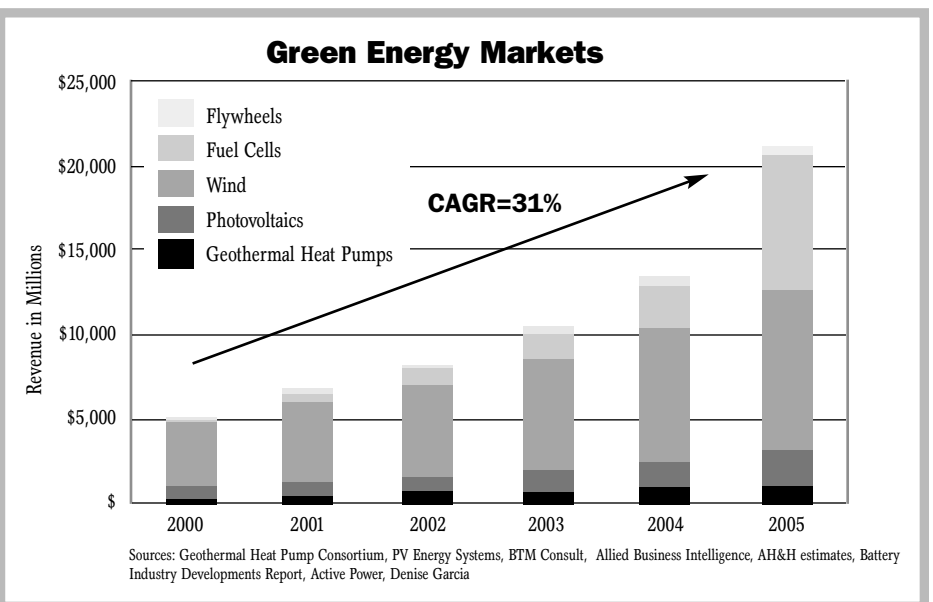
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Such expansion makes sense because fuel cells have so many potential applications. They will be in great demand for automobiles, trucks, and buses because of the zero-emission vehicle laws in California, Maine, Massachusetts, New York and Vermont. They will also become increasingly important in portable electronics and stationary power generators where they will offer reliability and long life. Wherever they are used, fuel cells will provide low emissions and high efficiencies in replacing and/or supporting the existing generating capacity.

Overall, every Green Energy technology will benefit from the spread of electricity deregulation.

Whatever causes these technologies to increase their share in existing markets, both investors and environmentalists will have reason to rejoice. 

Glossary: Green Energy Technologies

Geothermal Heat Pumps Replace traditional heating and cooling systems by using the temperature differential between a room and the earth. They work passively to heat and cool indoor air and do not generate electricity

Photovoltaics Convert sunlight to electricity through the use of solar cells. Refer to WEN March 1999.

Wind turbines Turbines capture wind energy with its blades and converts the rotational energy to electric current

Fuel Cells Convert the chemical energy of a fuel into electrical energy. Water and heat are the primary emissions. Refer to WEN November 2000.

Flywheel Mechanical energy storage device that stores energy as it rotates in one direction. Provides energy by rotating in the opposite direction

Source: Denise Garcia

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when the still incompletely tested and licensed corn turned up in human food and exports to Japan, the promise was transformed into a furor. With new developments being reported daily, the disastrous situation has taken a toll on nearly every type of business in the supply chain. That's in addition to those individuals who ate StarLink-tainted taco shells and corn chips and may have suffered allergic reactions including respiratory distress, rash, and diarrhea. Now, there's unintended consequences in spades.

StarLink: Approved Only for Animal Feed

Developed by Aventis CropScience, the German/French pharmaceutical giant, StarLink is one of several varieties of Bt corn-- hybrids that contain *Bacillus thuringiensis*, a natural soil bacterium that acts as a pesticide. StarLink is unique in containing the Cry9C protein, a crystalline protein used to engineer Bt corn. Because the Cry9C protein shares several properties characteristic of food allergens (resistance to digestion, heat stability, and molecular weight), StarLink has been licensed by the US

Environmental Protection Agency (EPA) only for animal feed and industrial uses. The EPA granted this provisional approval in 1998, but less than a year later, Aventis resubmitted its petition to allow Cry9C residues "in or on all raw agricultural commodities." A decision is still pending.

StarLink in the Human Food Chain

This fall, Cry9C residues were discovered in 300 American-made food products. It also turned up in feed corn exported to Japan, which bans the substance in all types of grains. As a result Kraft Foods was forced to recall its Taco Bell-brand taco shells from US stores and other food companies similarly withdrew their products. Japan, which imports about 4 million metric tons of corn for food and another 12 million metric tons for feed per year, demanded that the US ship no more contaminated grain. To comply, US grain inspectors began testing at grain elevators, at river barge loading facilities and on ships leaving the Gulf of Mexico. The Japanese threatened to conduct their own inspections, adding to costs. But even double inspections might not prevent a decline in

American exports. The Wall Street Journal reports that market watchers expect a big cut in export forecasts for US corn.

The Trickle-Down Effect of the Fiasco

Whether or not they planted StarLink, many American farmers have been adversely affected.

Aventis estimates that there were almost 2900 growers who actually planted 340,900 acres of StarLink corn, and another 1500 who grew conventional corn in 660-foot buffer zones adjacent to StarLink. This resulted in the production of approximately 75 million bushels of corn grown on or adjacent to the StarLink fields, according to Reuters reports. Approximately 12% or 9.6 million bushels got mixed with conventional corn.

It isn't clear exactly how the intermingling happened. The most likely scenario, according to Keith Pitts of the US Department of Agriculture, was "careless or sloppy handling of StarLink seed by a seed dealer.

On the other hand, some environmental organizations like Greenpeace believe the EPA

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Environmental Performance Improves Financial Results

The next issue of The Winslow Environmental News will feature a recent report about the relationship between the environmental performance of a firm and shareholder wealth. Ralph Earle, managing director of The Assabet Group, has analyzed the results of academic studies and several environmental investment funds, and has identified a positive correlation between environmental and financial results.

National Organic Standards Announced

The United States Department of Agriculture (USDA) recently finalized standards for organic foods. These will cover substances used in producing and handling organic crops, livestock and processed foods.



The rules prohibit genetically modified seeds, food irradiation, and the fertilization of crops with municipal sewage sludge. They also exclude crops produced with synthetic pesticides, chemical fertilizers or antibiotics.

According to Adams, Harkness & Hill analysts, this announcement could promote a \$7 billion industry that is already growing. Whole Foods Market, Wild Oats, United Natural Foods, Hain Celestial, Horizon Organic and Green Mountain Coffee stand to benefit from the new standards.

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succumbed to the overall dot.com implosion. As a result, WFMI has recently written off nearly all of its Internet-related investments, placed Amrion in discontinued operations, and sold Wholepeople.com. In general this strategy has been viewed positively by investors because it implies that the company is refocusing on its core business.

Future Industry Consolidation: A Natural Evolution

Traditionally, the natural food industry was highly fragmented with many small local retail stores comprising much of the market. This trend has begun to change in recent years as both mass-market groceries have increased their natural offerings and national whole food operators have built "super natural" stores. The two largest natural food chains, Whole Foods and Wild Oats (NASDAQ: OATS), account for nearly a quarter of the natural food market, which is estimated at \$6.6 billion in the United States by Nutrition Business Journal. It is believed that such large specialty retailers and a few super-market chains will dominate the natural food business in the future. Indeed, Kroger already boasts the largest sales of natural foods in the United States.


GMO: A Catalyst for Natural Food Growth

In the last few years, WFMI and the natural products industry has participated in the debate over genetically modified foods. The tenor of the discussion has become particularly heated since the fall, when StarLink GM corn, licensed only for animal feed, was found in the human food supply in the United States and Japan. That revelation turned the spotlight squarely on the uncertainties associated with GMs and the difficulty of controlling their distribution.

On the specific issue of GM corn, Whole Foods has taken a stand against Aventis' recent request for EPA approval of StarLink Cry9C protein in human food.

On the overall question of GM foods, the company has been warning consumers since 1992 about "the potential risks of this new technology" and has lobbied for mandatory labeling of all GM products so that consumers can make informed choices. It has also taken several steps to ensure that its merchandise is as free as possible of GMs, including:


- Working with manufacturers of its private label brands to test and, if necessary, reformulate its products.
- Verifying manufacturers' claims through its own polymerase chain reaction (PCR) testing.
- Using ingredients derived from non-genetically modified seeds.
- Continuing to feature certified organic products.

The only certain way for consumers to steer clear of GM products is to purchase organic foods, the company points out. Such recourse, of course, may well benefit WFMI and the entire natural food industry. If consumers become alarmed enough about possible dangers in their food, the segment could experience even faster growth than it already enjoys. 

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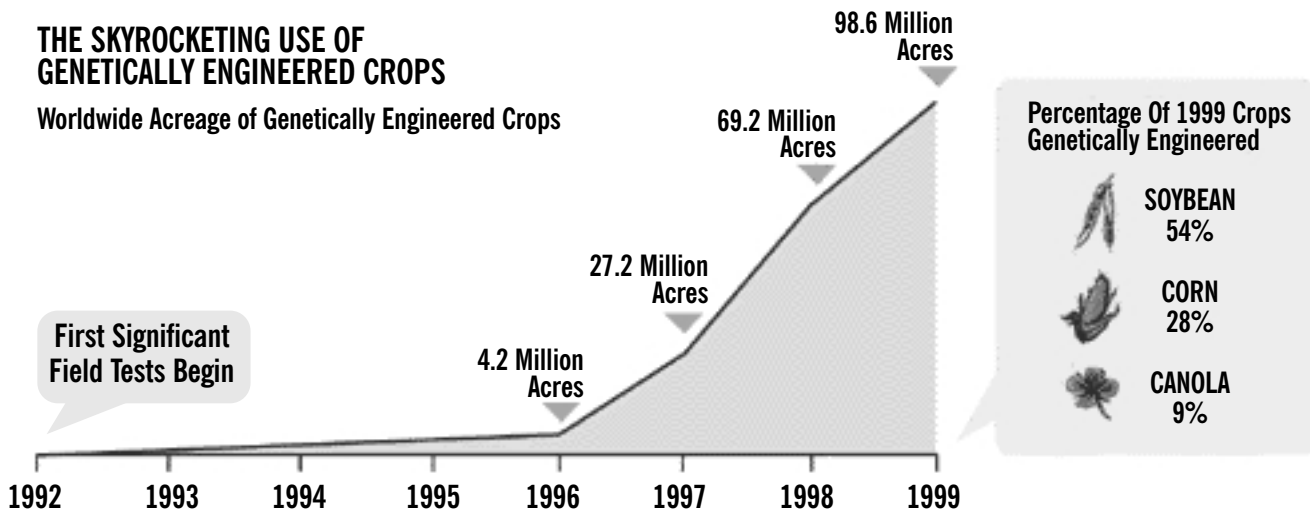
support the Trust.

Going forward, York will also have the right to periodically sell common shares for the benefit of the Trust. The issuance of the settlement shares would result in less than 25% dilution of common equity shareholders. Before the settlement was reached, York had paid the liabilities and costs of the settlement on an ongoing cash basis. The new arrangement will mean that future expenses are taken into account in the company's balance sheet and there should be no surprises.

York Research Corporation develops, owns and markets emerging energy projects and products. 

THE SKYROCKETING USE OF GENETICALLY ENGINEERED CROPS

Worldwide Acreage of Genetically Engineered Crops



Source: Safefoods Campaign

STARLINK Cont. from page 3

failed to exercise sufficient oversight. They also accuse EPA of being on the verge of "orchestrating a corporate bail-out of Aventis" through a retroactive approval of StarLink for human consumption.



However StarLink got into the food supply, many farmers and grain elevator operators have been forced to sell their crops at a discount. Seeking compensation, they have filed a class action lawsuit against Aventis blaming StarLink contamination for depressed corn prices and lost export business.

Aventis Takes Its Knocks

Even before being hit with the lawsuit, Aventis was facing big financial outlays as the result of its troublesome offspring. The company has promised to compensate grain handlers for expenses related to the StarLink problems. It has initiated a \$100 million corn buy-back program; it has helped pay to redirect barges, rail cars, and trucks; and it has sent out over a million test kits so that seed companies can ensure that their 2001 seed is free of StarLink proteins. The company has committed 80 to 100

people to full-time work on the problem.

Just How Hazardous is StarLink Anyway?

Because StarLink, like other GMs, is still so incompletely understood, it isn't known how much of a threat (if any) it poses. In a report by the EPA's Scientific Advisory Panel (SAP), researchers concluded "there is a medium likelihood that the Cry9C protein is a potential allergen based on the biochemical properties of Cry9C protein itself - not its levels in the food supply." It also agreed that the StarLink corn "should be classified as having low probability to sensitize some individuals to Cry9C protein." As for the reported cases of individuals who suffered allergic reactions, the researchers stated that "the clinical responses reported to date have been inconclusive".

Therefore, "because no single factor is completely predictive of allergenicity and no records of Cry9C human sensitization exist as yet, there can be no final proof that Cry9C is or is not a food allergen," the panel concluded. At the same time, however, it rejected Aventis' contention that new research showed StarLink to be harmless.

GMs: What's a Consumer to Do?

Many people will simply take their chances that GMs, like StarLink, are harmless until

proven otherwise. Others will want to minimize their risks by seeking out organic alternatives. That route will be difficult and frustrating. So far there are no laws requiring labeling of GM products, and even natural products stores, such as Whole Foods Markets (see accompanying story) cannot guarantee that all their foods are free of GMs.

As Margaret Wittenberg, Whole Foods Vice President for Government and Public Affairs explains, "In our private label products and our certified organic products, we can assure customers that there are no GMs." However, conventionally grown products are not so easy to guarantee. "We're almost there," said Wittenberg, "but there remain a few things" that have proven difficult to document - such as the provenance of high fructose corn syrup found in products like soda.



She quoted Agriculture Secretary Dan Glickman who is belatedly backing national standards for the segregation of GM grains. "The StarLink issue has brought up a lot of hard questions - questions that should have been addressed before..." 🐞

PORTFOLIO UPDATE

FuelCell Energy (NASDAQ: FCEL)

DANBURY, CT - While falling short of several milestones for the quarter, FuelCell Energy continues to make progress on its commercialization of carbonate fuel cells for stationary power generation. The company succeeded in completing its new Torrington, CT manufacturing facility on schedule. On the other hand, the company indicated that it will not meet its goal of securing a balance-of-plant partner until year-end 2001.

This mixed performance notwithstanding, FCEL beat estimates with a narrow fourth quarter loss while revenue for the period more than doubled over a year ago. Eight analysts surveyed by First Call/Thomson Financial produced a consensus figure estimating a loss of 16 cents a share for the fourth quarter. The company also posted a full-year loss of \$0.32 a share, compared with a loss of \$0.08 a share for FY1999. Analysts on average were expecting a loss of \$0.49 a share for FY 2000.

According to Namrita Kapur, Adams, Harkness and Hill analyst, FCEL's long-term fundamentals remain intact. The company's patented technology, which doubles the efficiencies of conventional electricity generation, holds out the promise of success in the emerging energy segment.

Oak Technology, Inc. (NASDAQ: OAKT)

SUNNYVALE, CA - Oak Technology recently unveiled its new ReWritable Compact Disc/DVD "Combo" controller, a device that allows optical storage drives to both read and write Compact Discs and read DVD discs. The new OTI-9897 Combo provides quick and easy shifting between media. It will not only be cheaper than earlier generation drives but will

allow for faster write speeds.

Oak targets two markets: optical storage (CD-RW and DVD for personal computers and consumer electronics) and digital imaging (advanced copiers, printers, faxes, and scanners). Among its new products is the SimpliCD CD-RW which makes it easier to "burn" CDs using a simplified drag and drop system. Potential manufacturing customers are sampling SimpliCD prototypes, which will be available for production release in first quarter 2001.

Oak should not be adversely affected by the near-term weakness in the overall PC industry because growth in the CD-RW market is strong. Oak expects to show positive growth in the December and March quarters as new manufacturing customers begin incorporating Oak devices in their products.

The Company reaffirmed second quarter revenue estimates of 15% to 20% sequential growth over the \$51 million reported in the first fiscal quarter. A First Call/Thomson Financial survey of four analysts produced a mean earnings estimate of 10 cents a share for the company's second quarter.

Wave Systems (NASDAQ: WAVX)

LEE, MA AND CUPERTINO, CA - Before sending credit card information over the Internet, do you wonder who is protecting your money? The answer can be found in Wave Systems. The Company develops software for electronic transactions, making online purchases and transfer of funds easier and secure.

Using its CharityWave.com infrastructure, the company recently automated the production of CIBC World Markets USA Miracle Day, a children's charity event. The fundraiser

brings together sales and trading staff, account executives, and colleagues around the world who donate fees and commissions. An annual event, Miracle Day has raised more than \$31.2 million since 1984.

CharityWave.com supplied online applications, an electronic database, due diligence and screening of all charity applications, online processing of contributions, customer relations management, and administration of charity payments.

Project Software & Development, Inc. (NASDAQ: PSDI)

BEDFORD, MA - PSDI, the leading provider of maintenance, repair and operations (MRO) materials is changing its name. The new corporate name, subject to stockholder approval in February 2001, is MRO Software, Inc. PSDI has reserved MROI as its new NASDAQ symbol.

The new corporate branding campaign was discussed recently during the Company's first-ever analyst meeting. Management is looking at the procurement needs of large industrial companies, the market for automating mid-sized industrial distributors, and the potential expansion of B2B partnerships.

First Analysis Securities upgraded PSDI from Accumulate to Strong Buy while Adams, Harkness and Hill maintains a Buy rating on the stock.

York Research Corporation

(NASDAQ: YORK)

NEW YORK, NY - York Research Corporation and North American Energy Conservation, Inc. have executed a Global Settlement Agreement with creditors to resolve claims arising from its wholesale natural gas business. Following court approval, York will form the York Trust for the compensation of creditors. A \$13 million cash payment, six million shares of common stock, a warrant for one million shares, and a contingent portion of future net cash flows will

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